# AlphaNet™ Series
## External DOCSIS® Analog Transponder

# Technical Manual
*Effective: January, 2006*

Alpha Technologies

Alpha Technologies

Power

# External DOCSIS® Analog Transponder Technical Manual

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Effective Date: January, 2006

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**NOTE:**

Photographs and drawings contained in this manual are only for illustrative purposes. These photographs and drawings my not exactly match your installation.

**NOTE:**

Review the written and illustrative information contained in this manual before proceeding. If there are questions regarding the safe installation or operation of this powering system or enclosure, please contact Alpha Technologies or your nearest Alpha representative.

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# Safety Notes

Review the drawings and illustrations contained in this manual before proceeding. If there are any questions regarding the safe installation or operation of the system, contact Alpha Technologies or the nearest Alpha representative. Save this document for future reference.

To reduce the risk of injury or death and to ensure the continued safe operation of this product, the following symbols have been placed throughout this manual. Where these symbols appear, use extra care and attention.

**ATTENTION:**

The use of ATTENTION indicates specific regulatory/code requirements that may affect the placement of equipment and /or installation procedures.

**NOTE:**

A NOTE provides additional information to help complete a specific task or procedure.

CAUTION!

The use of CAUTION indicates safety information intended to PREVENT DAMAGE to material or equipment.

**WARNING!**

WARNING presents safety information to PREVENT INJURY OR DEATH to the technician or user.

# 1.0 Introduction to the DOCSIS Transponder

The DOCSIS Analog Transponder provides the ability to manage network powering through existing cable modem infrastructure. A single transponder can monitor and manage a power supply, batteries, and generator. The transponder transmits data to a management system over the network's existing CMTS, and using standard SNMP (Simple Network Management Protocol) keeps bandwidth use to a minimum. Status Monitoring information is compatible with ANSI/SCTE HMS standards.

With optional VoIP test functionality, the power supply transponder becomes a powerful network diagnostics tool.

Whether extending the life of your network backup power through battery balancing, managing QoS for VoIP services, or monitoring for trouble areas during an AC power outage, the Alpha DOCSIS Analog Transponder provides the tools needed to manage today's network power requirements, and the ability to upgrade for tomorrow's needs.

**Features:**

- Uses existing headend equipment
- Uses ANSI/SCTE HMS standards
- Single transponder supports a variety of power supply models

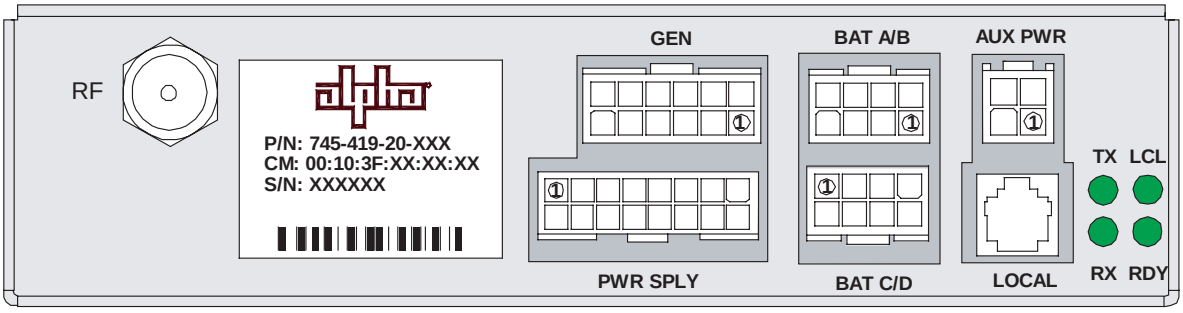



Fig. 1-1, DOCSIS External Analog Transponder

## 1.1 System Overview

The DOCSIS Analog Transponder receives data from a Universal Status Monitoring Card on XM series power supplies, from the status monitor connector on Lectro ZTT power supplies, or from the RPM card on AM power supplies. The transponder and power supply can be network managed through your existing CMTS.

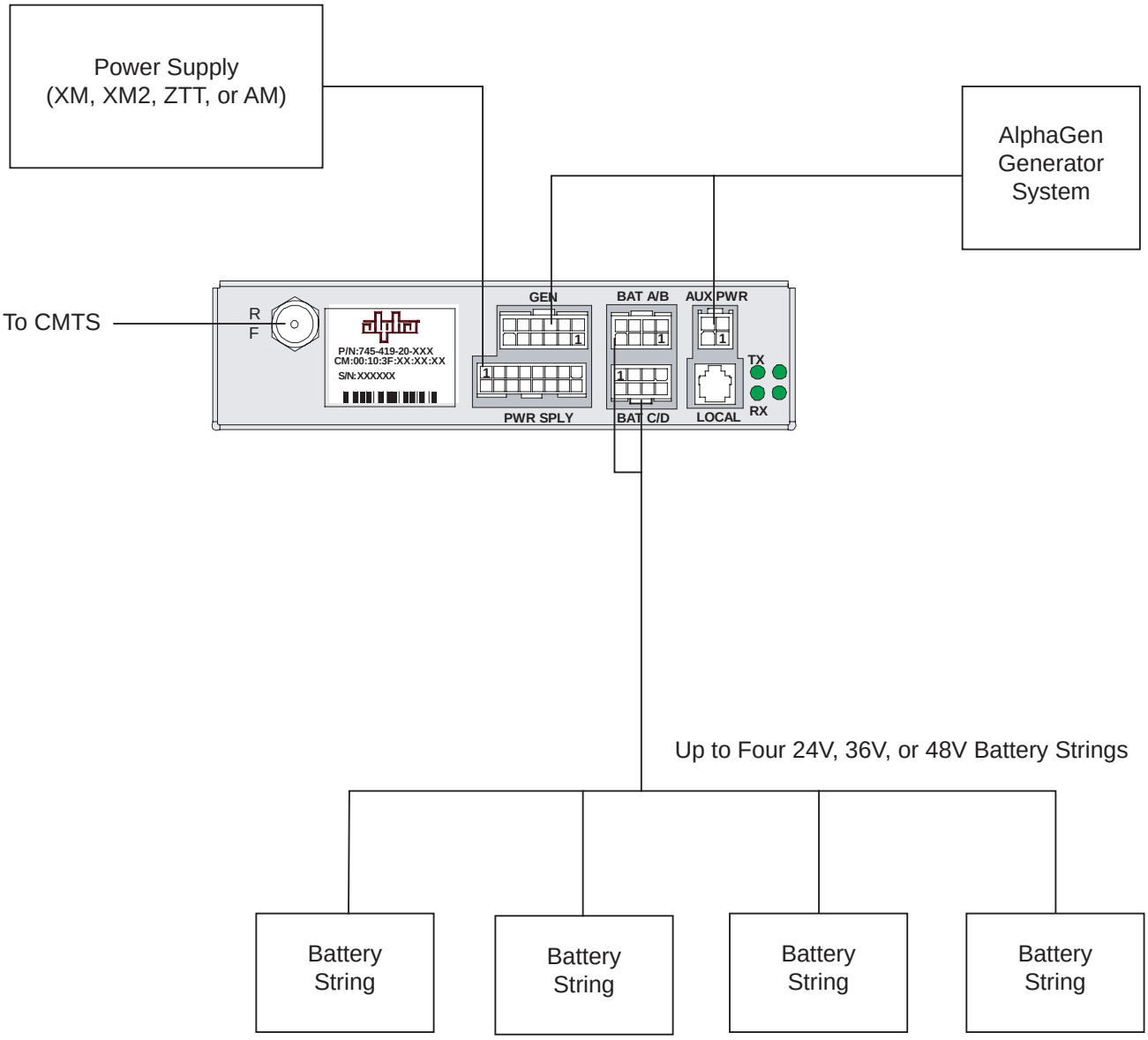
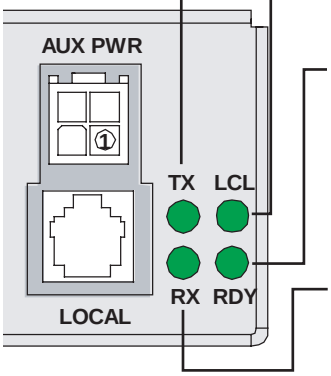



Fig. 1-2, Basic System Block Diagram

## 1.2 LED Indicators




| | |
|---|---|
| TX: Indicates status of data transmission to CMTS. | |
| OFF: | Idle Status. |
| Flickering ON: | Communicating with CMTS. |
| LCL: Indicates the status of the local Craft port. | |
| OFF: | No communication. |
| ON flickering OFF: | Ongoing communication. |
| RDY: Indicates operation status of the transponder. | |
| Flashing ON and OFF: | Normal Operation. |
| OFF: | No power or malfunctioning transponder. |
| ON: | Transponder reset in progress. |
| RX: Status of data reception from CMTS. | |
| ON: | Communication established with CMTS. |
| OFF: | No communication with CMTS. |
| ON flickering OFF: | Receiving data, CMTS link established. |
| Flashing ON & OFF: | Indicates loss of communication with CMTS |

Fig. 1-3, LEDs

# 2.0 Transponder Installation

**Steps to a Successful Installation:**

- Operator's IT Department must allow the transponder's Cable Modem (CM) to obtain an IP address from the DHCP Server.
- Operator's IT Department must load the `hmsinit.ini` file on the TFTP Server, or use the cable modem config file (see section 2.1.3).
- Operator's network security policies must allow SNMP traffic to pass between transponder and SNMP manager.
- Install the transponder and any related equipment in the enclosure.
- Connect an RF drop.
- Verify proper operation.

**Quick Start Transponder Operation:**

1. Verify the power supply communication card settings are correct. See Section 2.3 for details.
2. Provide power by connecting the battery sense cable or Auxiliary Power connection. Refer to Section 2.2 for details.
3. Wait until the RDY LED begins flashing, and then connect the power supply interface connection. See Section 2.4.
4. Connect all other Input/Output connections. See Section 2.5, 2.6, or 2.7 for details.

## 2.1 Provisioning the Transponder

Complete Sections 2.1.1 and 2.1.2 before connecting the transponder to the RF network. Otherwise, you must reset each transponder.

### 2.1.1 Network Connectivity

The transponder's cable modem must be recognized by the CMTS as a valid device, be able to obtain an IP address from the DHCP server, locate the TFTP and TOD servers, and communicate with the SNMP management server (trap receiver). Different security methods are used to insure network integrity, some common issues are:

- A "subscriber account" (where the subscriber is the transponder) may be required for each transponder.
- The transponder's MAC address may have to be pre-loaded into the CMTS.
- MAC filtering may have to be modified to allow MAC addresses starting with 00:10:3f:xx:xx:xx to be registered.
- For SNMP access, UDP ports 161 & 162 must not be blocked.
- Firewalls must allow communication between the cable modem and the various servers noted above.
- If the address of the TFTP and/or TOD server is different than the DHCP server, the response from the DHCP server must contain the TFTP and TOD addresses.

### 2.1.2 Transponder Configuration Using the HMS.INI File

The transponder's cable modem, at first power-up or reset command, requests a configuration file from the TFTP server. The file must contain the IP address of the SNMP manager. It may also contain up to five additional SNMP trap recipients. The SNMP manager is the only device that can perform SNMP set/get/get-next commands. The trap recipients and SNMP manager receive the same traps from the transponder.

The following is a guideline on how to setup/write the `hmsinit.ini` file for the transponder. Ensure the `hmsinit.ini` file has been successfully modified, installed, and tested prior to installing transponders into the system.

**File Name**

The file name of the HMS initialization file is: `hmsinit.ini`. Please note that the file name is entirely in lower case. The alpha-case of the file name is unimportant on a Windows based server, however the alpha-case is critical in a UNIX server. As a result, it is considered good practice to have the file name in lower case regardless of the server operating system.

**Sample hmsinit.ini File**

====BEGIN sample `hmsinit.ini` file===THIS LINE NOT IN FILE

```
// This identifies the IP address of the SNMP manager
[SERVER IP]
10.1.1.5

// This identifies the IP addresses of up to 5 SNMP trap receivers
[TRAP SERVER IP]
10.1.1.6
10.1.1.7

// This identifies the IP address of the TOD server
[TIME SERVER IP]
10.1.1.8

// This sets the SNMP community string (default DOCSIS)
[DISCOVERY COMMUNITY]
DOCSIS

// This sets the Read Only access community string
[READ COMMUNITY]
apple

// This sets the Read/Write access community string
[READ/WRITE COMMUNITY]
ORANGE

// This sets the SNMP access to ENABLE or DISABLE (default DISABLE)
[SECURE SNMP]
ENABLE

//This identifies the IP addresses of up to 5 Secure Host IPs
[SECURE HOSTS]
10.1.1.9
10.1.1.10
```

====END sample `hmsinit.ini` file===THIS LINE NOT IN FILE

**NOTES:**

- The "//" characters indicate an optional comment line.
- Please note that there is only one each <CR> and a <LF> (cursor return and line feed) at the end of every section.
- There must also be only one <CR> and only one <LF> past the last character at the end of the file.
- The identifiers (in brackets) must be in upper-case.
- The IP addresses must appear on the next line after the identifier, one address per line. The addresses that are shown are examples only.
- The "Trap Server" IP identifier/section is optional.
- Only enter READ, READ/WRITE sections to enable the SNMP access list.
- Up to 5 IP addresses can be specified under SECURE HOSTS. The Secure Host list will always include the IP address under SERVER IP for a total of 6.
- The Community Strings (Discovery, Read, Read/Write) can be any alphanumeric string 20 characters or less. Any combination of upper or lower case can be used, the string is case-sensitive. "Special" characters or punctuation are allowed (@#$%^&*<>;:~ etc.).
- The DISCOVERY COMMUNITY string is effectively the same as the READ/WRITE COMMUNITY. It's default is DOCSIS and is primarily used by Cheetah software. With SECURE SNMP set to ENABLE, the IP address making the read/write request must be in the SECURE HOSTS access list.
- Through the Local/Craft Port, the command SETREAD allows setting of the READ COMMUNITY string, in case the `hmsinit.ini` file is not used or does not exist.
- Through the Local/Craft Port, the command SETWRITE allows setting of the READ/WRITE COMMUNITY string, in case the `hmsinit.ini` file is not used or does not exist.
- Through the Local/Craft Port, the command SECURELIST will reveal the contents of the Secure SNMP Access List as well as whether the feature is enabled or disabled.

### 2.1.3 Transponder Configuration Using Cable Modem Config File

To eliminate the `hmsinit.ini` configuration file, a select set of MIB variables must be added to the cable modem config file. These MIB variables contain the initialization parameters that replace the `hmsinit.ini` file. If the parameters are not set in the cable modelm config file, the code will fall back to its previous operation and attempt to load an `hmsinit.ini` file from the TFTP server.

**Single IP Operation**

1. The settings are obtained by the transponder through the normal boot process via the cable modem config file. The transponder code uses the new MIB variables to construct a file image in RAM. The file image will be transferred from the transponder to the Dallas chip in the same manner as the `hmsinit.ini`.
2. If there are no hmsinit settings in the cable modem config file, the code will attempt to retrieve the `hmsinit.ini` file from the TFTP server. This allows current customers to continue with their existing setup utilizing `hmsinit.ini`.

**Dual IP Operation**

1. For customers specifying a different TFTP server for the HMS config, the code operates as it currently does. The Dallas chip gets a TFTP file name from its DHCP offer. It downloads `hmsinit.ini` directly as it does now. In this case settings are not required in the cable modem config file.
2. Dual IP customers can use the cable modem config file to obtain the settings. In this case, there is no need to supply a filename in the DHCP offer. The Dallas side of the chip looks to see if there is a filename, if there is not, it attempts to retrieve `hmsinit.ini`. When it recognizes there is no `.ini` file, it queries the chip for the data.

**NOTE:**

The HMS config data, whether configured using the cable modem config file or `hmsinit.ini`, is set when the unit boots. The transponder must be reset for configuration changes to update. A separate HMS reset is not required.

The following parameters will be supported in the MIB that replaces `hmsinit.ini`. Note that this is the maximum set of parameters, some are optional.

[SERVER IP]
[TIME SERVER IP]
[TRAP SERVER IP]
[DISCOVERY COMMUNITY]
[READ COMMUNITY]
[READ/WRITE COMMUNITY]
[SECURE SNMP]
[SECURE HOSTS]

## 2.1 Provisioning the Transponder, continued

### 2.1.3 Transponder Configuration Using CM Config File, continued

The following table lists the OID's from the MIB for each parameter. In case of any discrepancy the MIB itself should be considered correct. This is included as a reference for creating the cable modem config files.

| TLGDHMSInit MIB | | | |
|---|---|---|---|
| PARAMETER | OID | TYPE | VALUE |
| SERVER IP | 1.3.6.1.4.1.2082.5.1.1.1.1.0 | IP address | Dotted decimal IP Eg. 172.16.3.42 |
| TIME SERVER IP | 1.3.6.1.4.1.2082.5.1.1.1.2.0 | IP address | Dotted decimal IPEg. 172.16.3.42 |
| DISCOVERY COMMUNITY | 1.3.6.1.4.1.2082.5.1.1.1.3.0 | Octet String | 25 character maxe.g. DOCSISdefaults to DOCSIS |
| READ COMMUNITY | 1.3.6.1.4.1.2082.5.1.1.1.4.0 | Octet String | 25 character maxdefaults to MAC address |
| READ/WRITE COMMUNITY | 1.3.6.1.4.1.2082.5.1.1.1.5.0 | Octet String | 25 character maxdefaults to MAC address |
| SECURE SNMP | 1.3.6.1.4.1.2082.5.1.1.1.6.0 | Integer | 1 enabled 2 disabled |
| TRAP SERVER IP | 1.3.6.1.4.1.2082.5.1.1.1.7.1.2.1 | IP address 1 | Dotted decimal IPEg. 172.16.3.42 |
| TRAP SERVER IP | 1.3.6.1.4.1.2082.5.1.1.1.7.1.2.2 | IP address 2 | Dotted decimal IPEg. 172.16.3.42 |
| TRAP SERVER IP | 1.3.6.1.4.1.2082.5.1.1.1.7.1.2.3 | IP address 3 | Dotted decimal IPEg. 172.16.3.42 |
| TRAP SERVER IP | 1.3.6.1.4.1.2082.5.1.1.1.7.1.2.4 | IP address 4 | Dotted decimal IPEg. 172.16.3.42 |
| TRAP SERVER IP | 1.3.6.1.4.1.2082.5.1.1.1.7.1.2.5 | IP address 5 | Dotted decimal IPEg. 172.16.3.42 |
| SECURE HOSTS | 1.3.6.1.4.1.2082.5.1.1.1.8.1.2.1 | IP address 1 | Dotted decimal IPEg. 172.16.3.42 |
| SECURE HOSTS | 1.3.6.1.4.1.2082.5.1.1.1.8.1.2.2 | IP address 2 | Dotted decimal IPEg. 172.16.3.42 |
| SECURE HOSTS | 1.3.6.1.4.1.2082.5.1.1.1.8.1.2.3 | IP address 3 | Dotted decimal IPEg. 172.16.3.42 |
| SECURE HOSTS | 1.3.6.1.4.1.2082.5.1.1.1.8.1.2.4 | IP address 4 | Dotted decimal IPEg. 172.16.3.42 |
| SECURE HOSTS | 1.3.6.1.4.1.2082.5.1.1.1.8.1.2.5 | IP address 5 | Dotted decimal IPEg. 172.16.3.42 |

Table 2-1, TLGDHMSInit MIB

## 2.2 Battery Sense Cable and Aux Power Connections

The battery sense cable (BSC) is used for battery sensing and for powering the transponder. Acceptable voltages are 20-60VDC. Install the cables as shown in the following diagrams. The Aux Power connection is only needed when the battery pack is greater than 15 feet from the transponder.

CAUTION!

Verify battery connections are correct prior to applying power. Incorrect battery connections can permanently damage the transponder.

**NOTE:**

**XM With Alpha External DOCSIS Transponder Installation Note:** Alpha Battery Sense Cables, (BSC), were designed to be used with all Alpha AM, XM, ZTT+, and XM2 power supplies. When using with an *XM* power supply the following procedure must be used to ensure proper operation.

**New Installs**

1. When using with XM power supply and Alpha External DOCSIS Transponder, do not connect the black (negative) wire on the BSC to the negative post on Battery #1.

**Existing Sites**

1. Disconnect BSC from battery connector (BAT A/B) on the transponder.
2. Locate the black (negative) wire and disconnect from the negative post on battery #1.
3. Remove the wire completely from the negative battery post. Insulate the ring lug connector using suitable material, such as heat shrink or non-conductive tape.
4. Reconnect BSC to the battery connector (BAT A/B) and verify transponder operation.

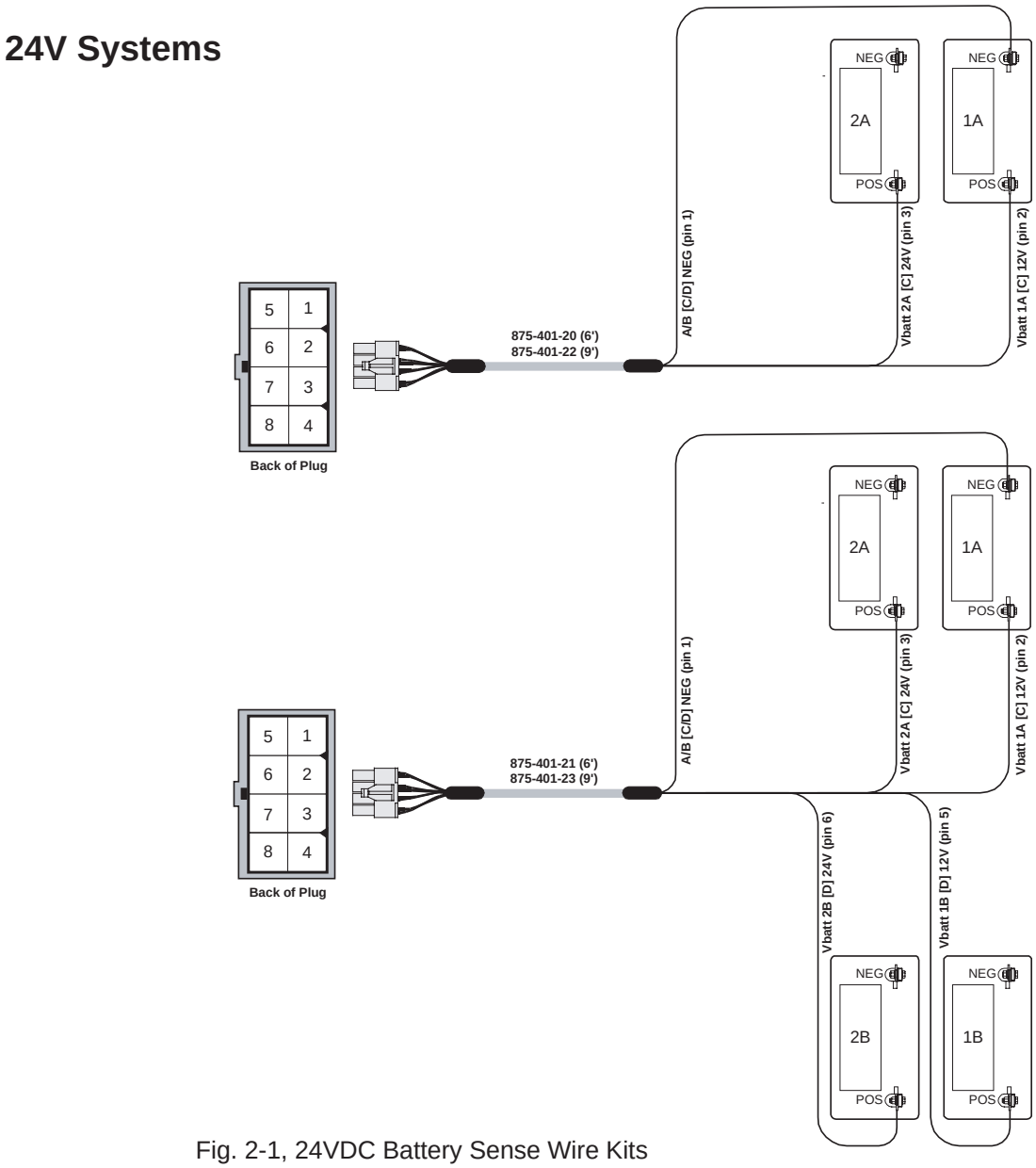



Fig. 2-1, 24VDC Battery Sense Wire Kits

CAUTION!

When using the battery sense kit with *XM* power supplies, do not connect the A/B [C/D] NEG wire.

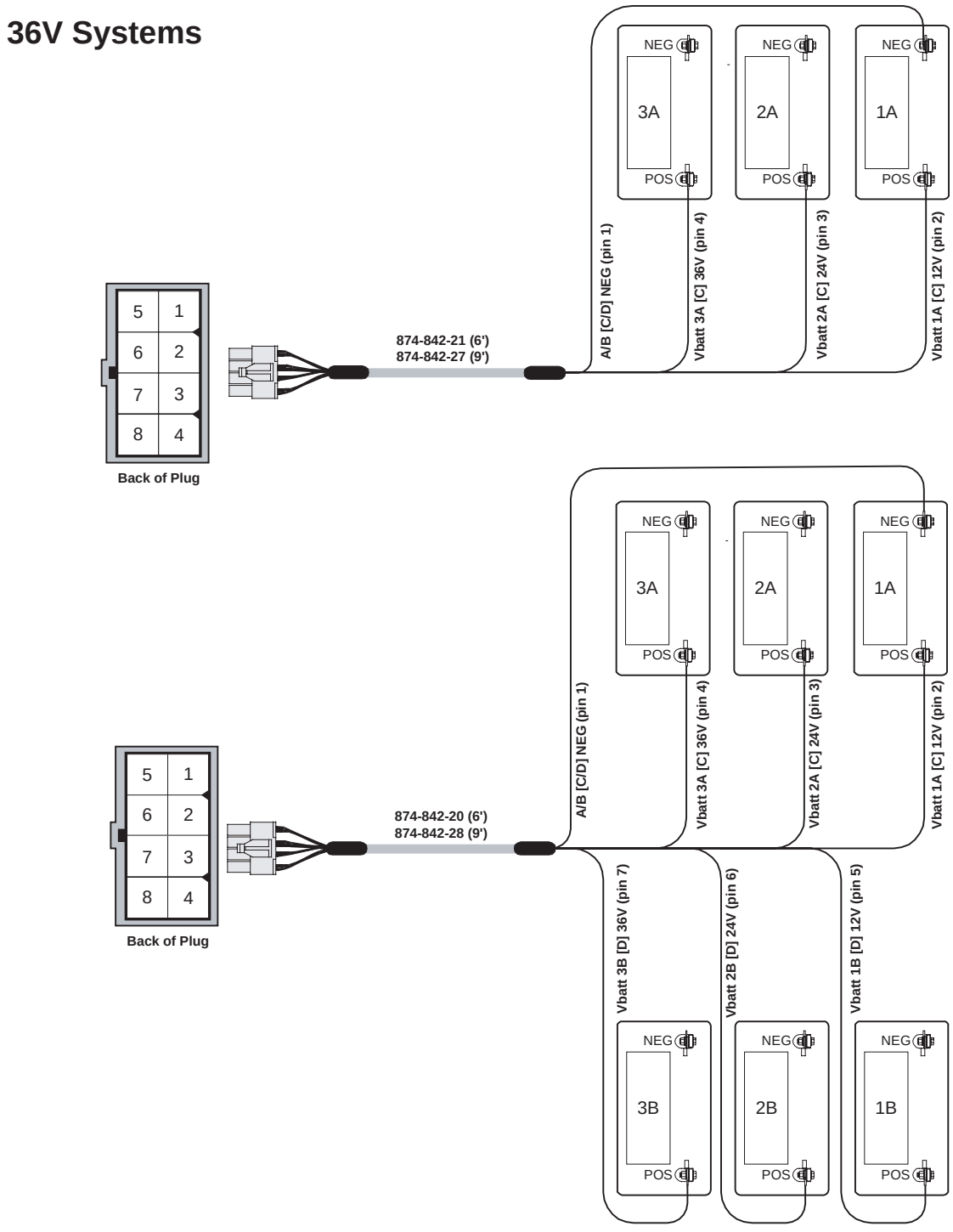



Fig. 2-2, 36VDC Battery Sense Wire Kits

CAUTION!

When using the battery sense kit with *XM* power supplies, do not connect the A/B [C/D] NEG wire.

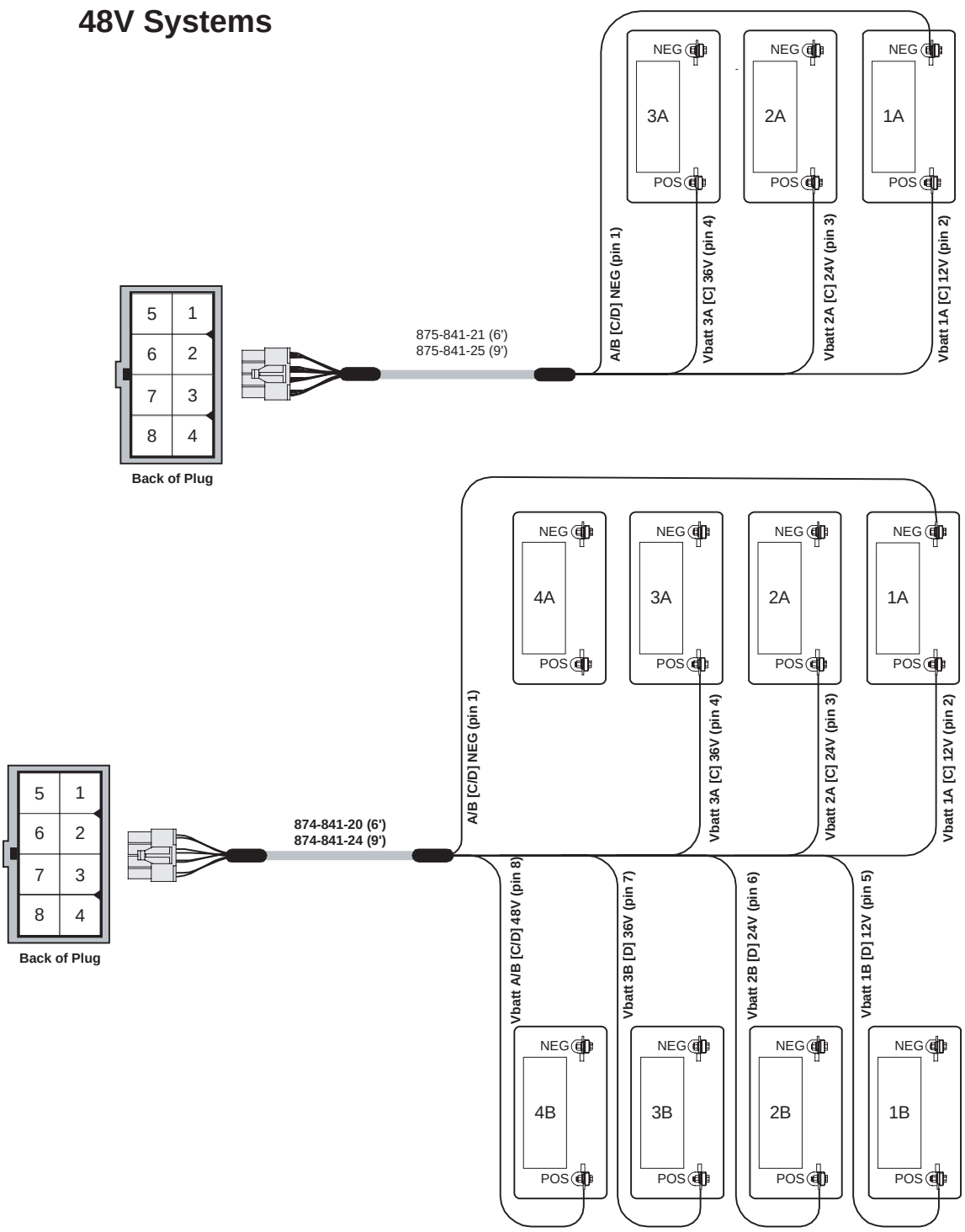



Fig. 2-3, 48VDC Battery Sense Wire Kits

CAUTION!

When using the battery sense kit with *XM* power supplies, do not connect the A/B [C/D] NEG wire.

## 2.0 Transponder Installation, continued

### 2.2 Battery Sense Cable and Aux Power Connections, continued

Use the Aux Power connector to connect the ignition battery sense and auxiliary power connections when the battery strings are located more than 15 feet from the transponder. The Generator Ignition Battery Sense cable must be connected as shown below. Connect the Aux Power connector where the red and black cables leading to the power supply are connected.

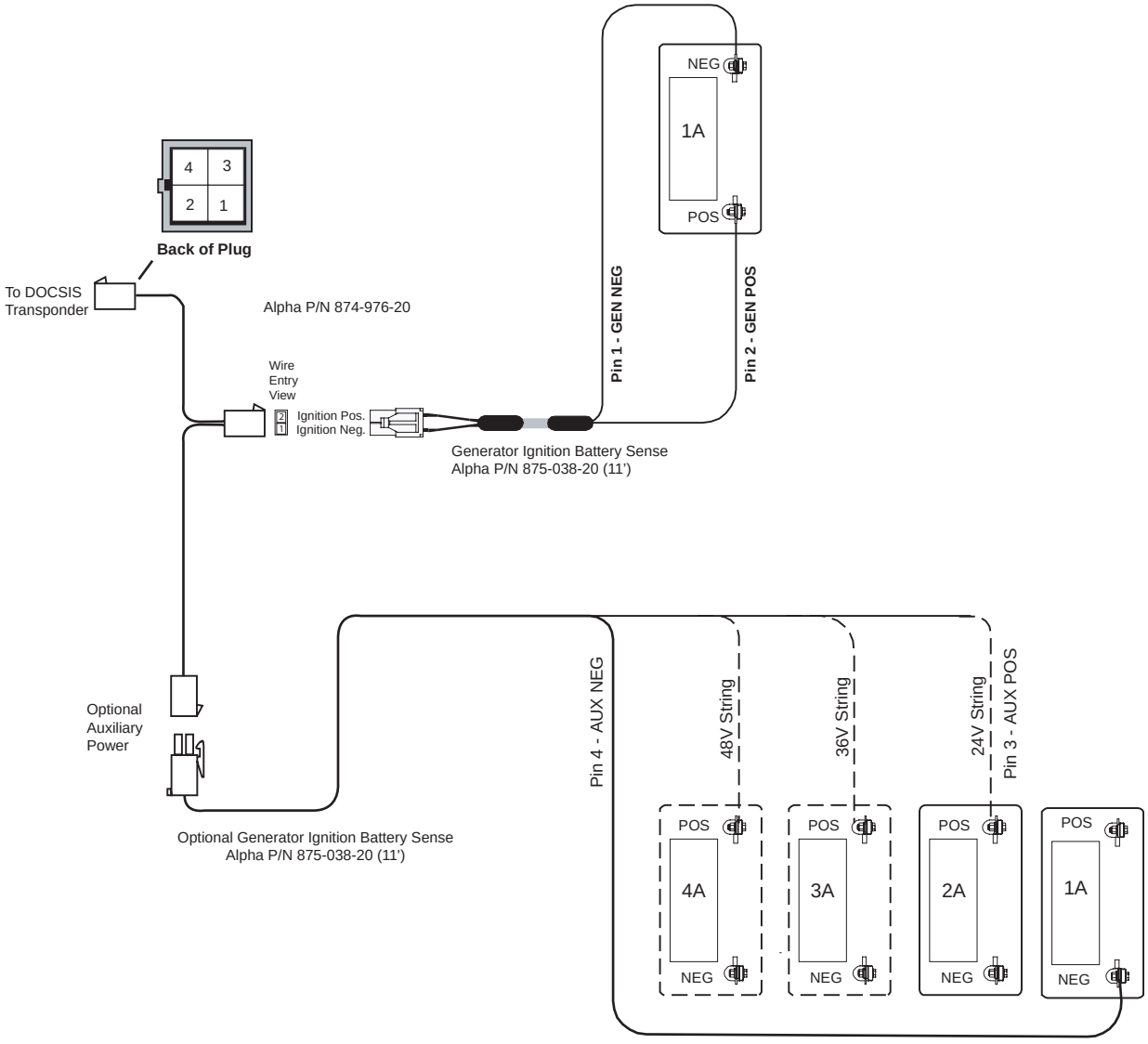



Fig. 2-4, Aux Power and Generator Ignition Battery Connectors

**NOTE:**

Pin 3 AUX POS connects to the last positive terminal in the string. This may vary depending on whether a 24V, 36V, or 48V string is used.

## 2.3 Power Supply Communication Card Settings

The power supply communication card settings determine the digital/analog setup and scaling that affect how information is reported to your network management system. Refer to your power supply's communication card settings to be certain that your communication card is set up correctly. The following table is for reference only.

**NOTE:**

RPM-AM boards marked 700-019-28, 700-019-31, and 700-019-40 are compatible with the DOCSIS HMS Analog Transponder.

| XM - USM |
|---|
| P1 = 2 & 3 |
| P2, P4, P5, P6 = Closed |
| P3 = Open |
| P7 = 5V |
| P8, P9, P13 = 1 & 2 |
| SW4 = 0 |
| XM2 - USM2 |
| SW1-1, 2, 6, 8 = On |
| SW2-1, 3, 4 = On |
| JP1 = C & 1 |
| JP2 = 1 & 2 |
| XM2 - USM2.5 |
| SW1-1, 2, 6 = On |

Table 2-2, Power Supply Communication Card Settings

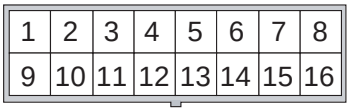
**NOTE:**

Output Current switch settings are determined by the output current capability of the power supply and should be setup accordingly. See your power supply user manual for setting details.

- USM: N/A
- USM2: SW1-3 = Output #1, SW1-4 = Output #2
- USM2.5: SW1-3 = Output Current Scaling, 15A or 22A

## 2.4 Power Supply Interface Connection

The table below describes the POWER SUPPLY connector. The interface config bits (pins 7,8, and 9) allow the transponder to monitor different power supplies, and provide varying monitoring capabilities.




Back of Plug

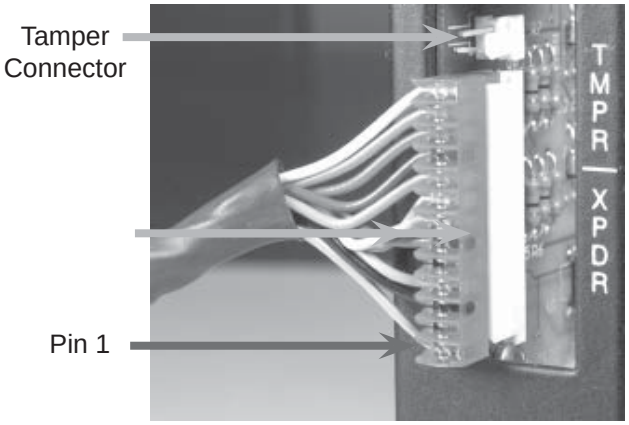
| Pin | Description | Type | States (Active State in BOLD) | Scaling |
|---|---|---|---|---|
| 1 | (GND) Reference Return | | | |
| 2 | Inverter Test/Reset | Digital Out | **Low**/High | |
| 3 | RTS Power | Analog Out | | +5V Power to RTS |
| 4 | Tamper Status | Digital In | **High**/Low | |
| 5 | Output Fail Alarm | Digital In | High/**Low** | |
| 6 | Equipment Fail Alarm | Digital In | High/**Low** | |
| 7 | Interface Config Bit 1 | Digital In | Open/**Ground** | |
| 8 | Interface Config Bit 2 | Digital In | Open/**Ground** | |
| 9 | Interface Config Bit 3 | Digital In | Open/**Ground** | |
| 10 | Output Current 1 | Analog In | | 0.4VDC/1A AC (AM, XM, XM2) |
| 11 | Output Current 2 | Analog In | | 0.4VDC/1A AC (XM2 Only) |
| 12 | Standby/Line Fail | Analog In | High/**Low** | |
| 13 | RTS | Analog In | | 2.98VDC @ 25ºC, 10µV change per ºC |
| 14 | AC Input Voltage -or- | Analog In | | 0-2.8Vpk (XM2) |
| | Output Current 1 | Analog In | | 0.1VDC/1A AC (ZTT option) |
| 15 | AC Input Voltage | Analog In | | 0.1VAC/1VAC (ZTT option) |
| 16 | AC Output Voltage | Analog In | | 0.5VAC/1VAC (XM, XM2) 1VAC/1VAC (ZTT option) |

Table 2-3, Power Supply Interface Connection

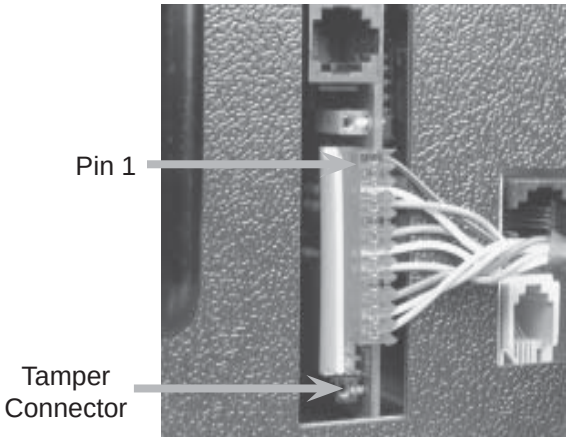
## 2.0 Transponder Installation, continued

### 2.4 Power Supply Interface Connection, continued

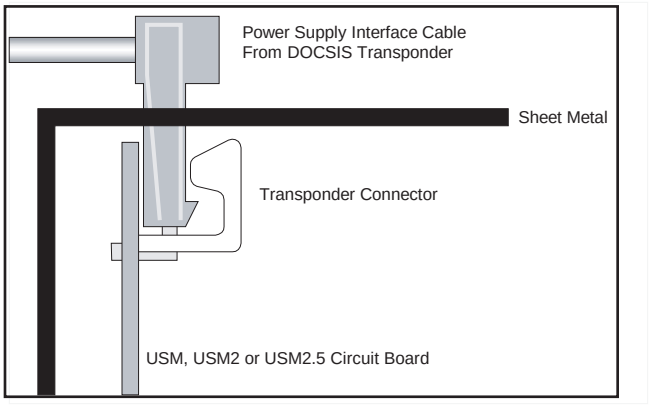
Connect the Interface cable to the USM, USM2, USM2.5 or RPM card as shown below. Verify that pin 1 lines up with pin 1 on the connector (furthest from the 2 pin tamper connector).



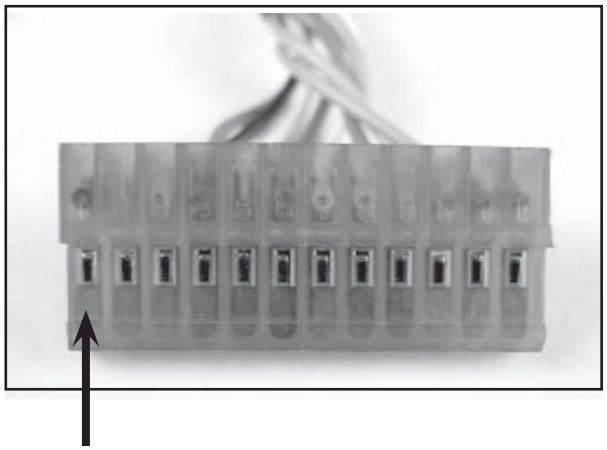

XM2 Series with USM-2 or USM2.5

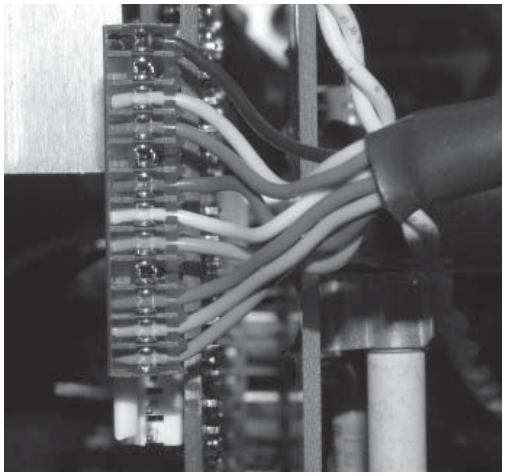



XP Series with USM




Side View of Connector



AM Power Supply with RPM Card

Fig 2-5, Power Supply Interface Connections

## 2.5 Input and Output Connections, XM2, XM, and AM Models

Connect the battery string or Aux Power connector to power the transponder. Connect the remaining cables as shown below.

**NOTE:**

Verify the transponder cable modem MAC address is recorded in the CMTS before connecting the RF cable and powering up the transponder.

| | | |
|---|---|---|
| 1. | Generator Interface, | Alpha P/N 874-975-20 |
| 2. | Battery Sense Kit | See Sec. 5.0 for list |
| 3. | Ignition Battery/ Aux Power Cable, | Alpha P/N 874-976-20 |
| 4. | Power Supply Interface | See Sec. 5.0 for list |
| 5. | Battery Sense Kit | See Sec. 5.0 for list |
| 6. | Craft Port Cable | Alpha P/N 875-349-10 |
| 7. | RTS Cable | Alpha P/N 745-178-21 |
| 8. | Vin Sense | Alpha P/N 875-493-21 |

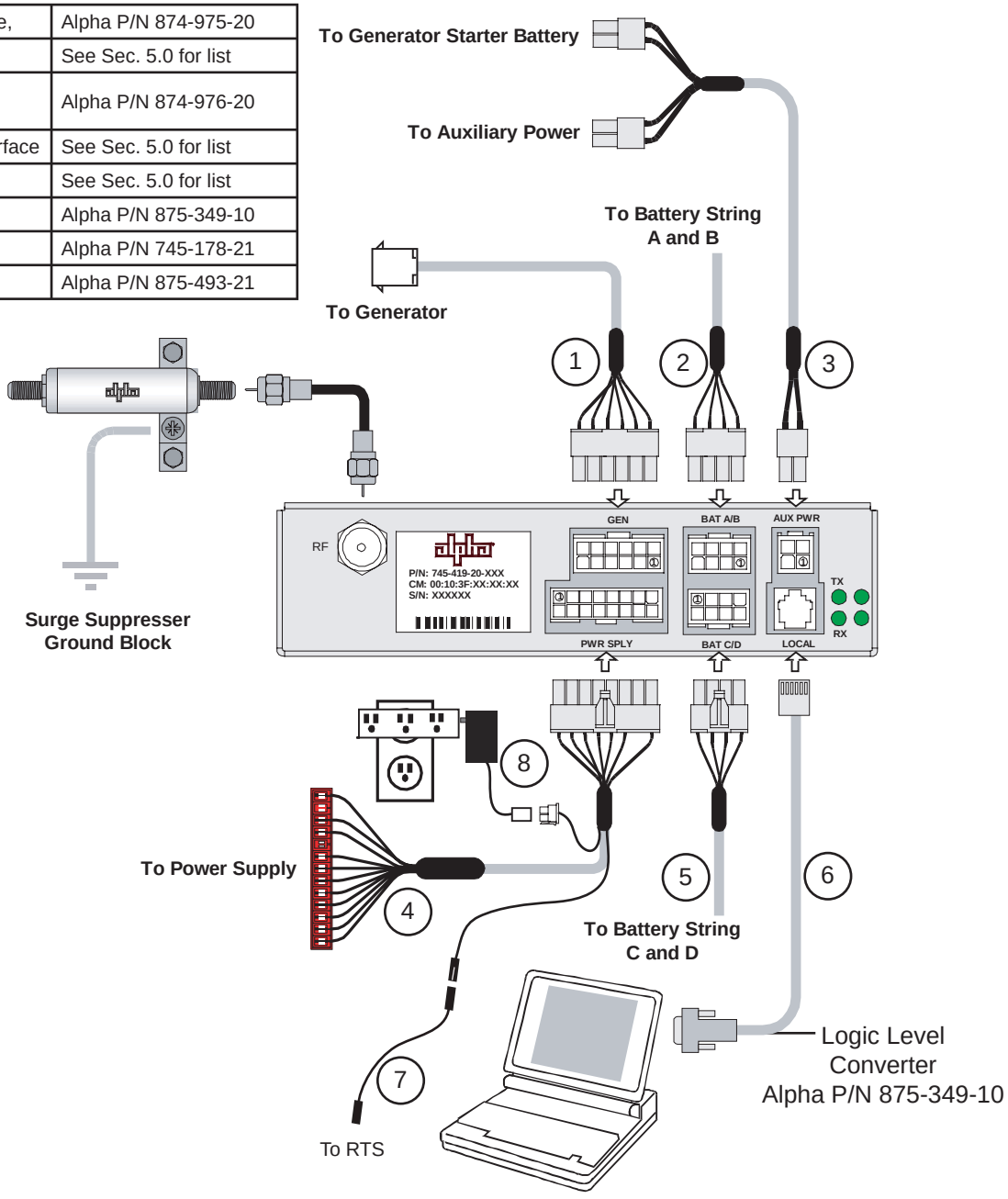



Fig. 2-6, Input and Output Connections, XM2, XM, and AM Models

CAUTION!

A ground block with surge suppression device is required to protect sensitive electronic components.

## 2.6 Input and Output Connections, ZTT and ZTT+ Models

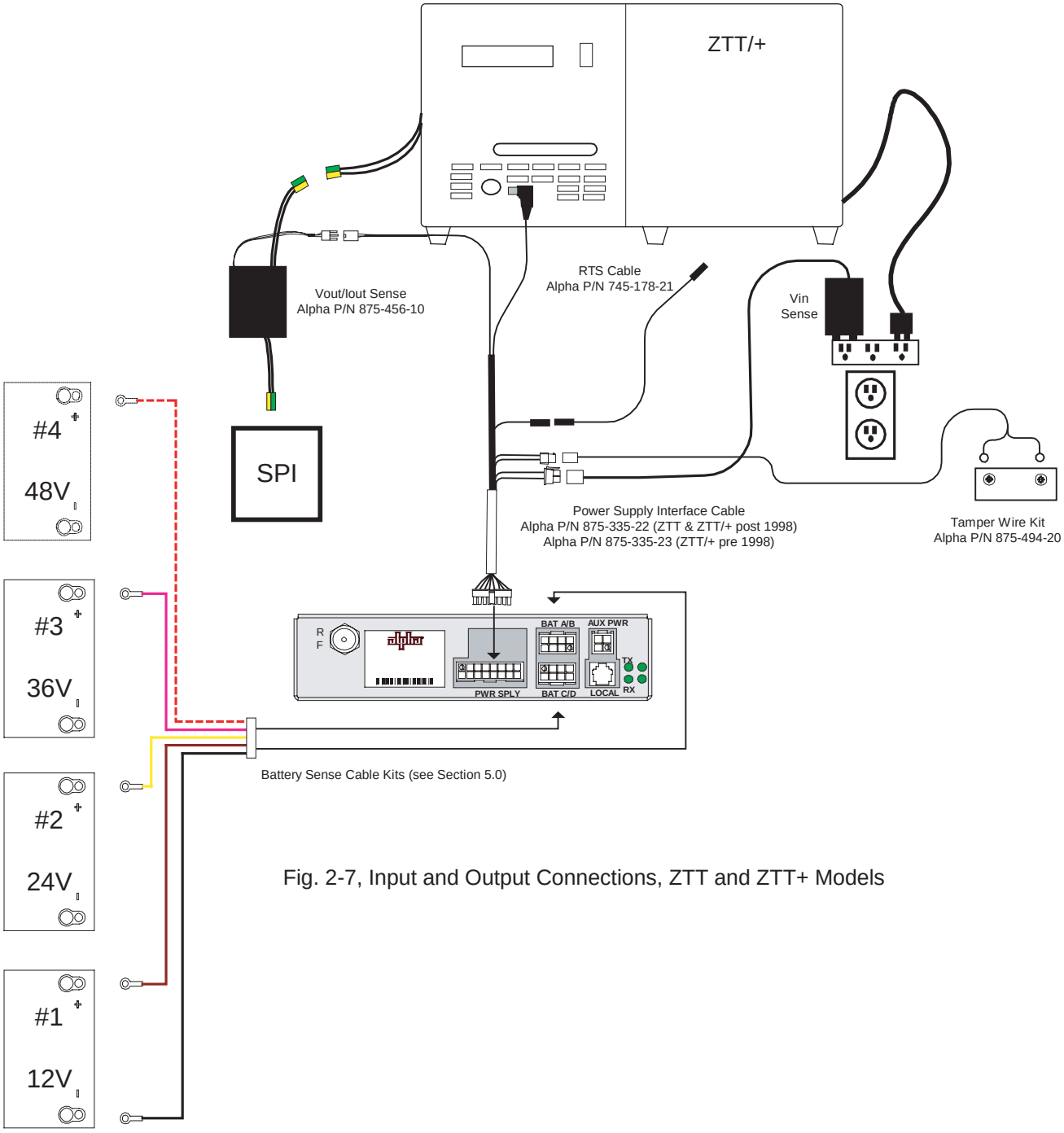



Fig. 2-7, Input and Output Connections, ZTT and ZTT+ Models

## 2.7 Input and Output Connections, Generic Models

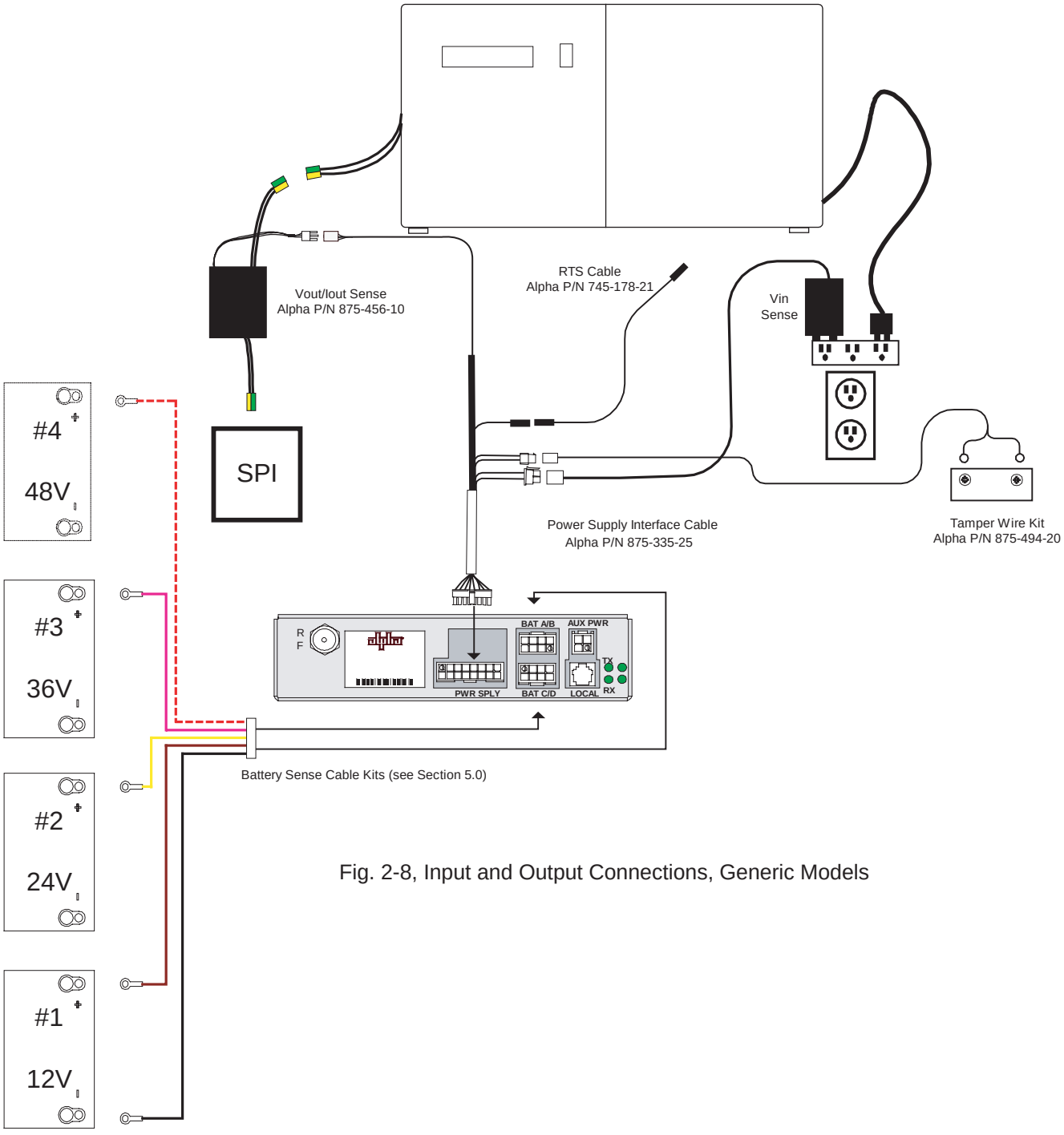



Fig. 2-8, Input and Output Connections, Generic Models

## 2.8 Transponder Placement

Place the transponder in the power supply section of the enclosure away from other heat sources.

Procedure:

1. Connect all cables to the front of the transponder before mounting.
2. Select an area on the right side of the enclosure if possible (as shown below).
3. Test fit the transponder to ensure that the cables are long enough.
4. Clean the area to ensure a strong bond with the adhesive.
5. Remove the protective tape over the adhesive and press into place.

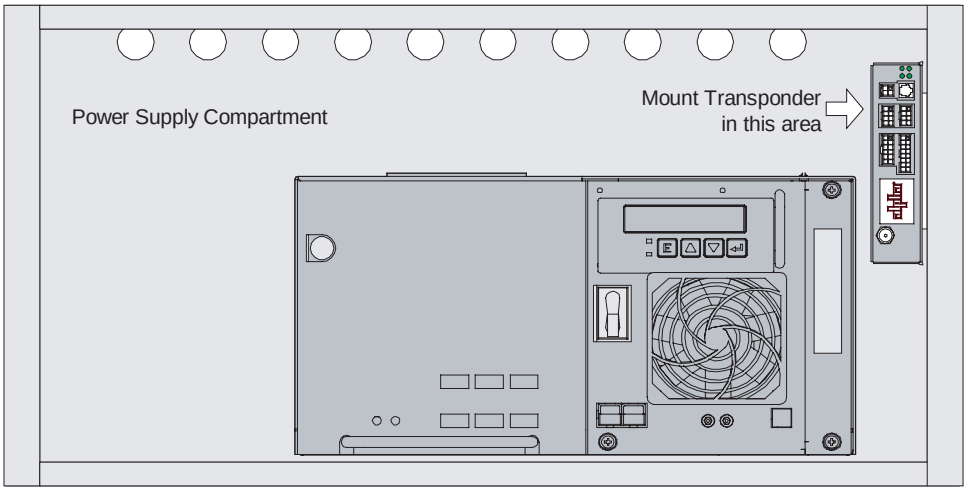



Fig. 2-9, Suggested Transponder Mounting Location

## 2.9 Local and RF Connectors

The Local connector allows the technician to communicate with the transponder and power supply through a PC's RS-232 serial port.

The RF connector is the primary I/O port to the CMTS.

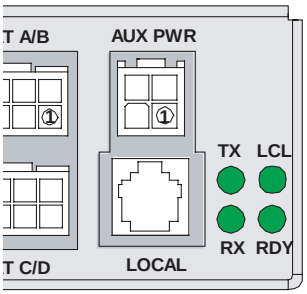



Fig. 2-10, Local Port

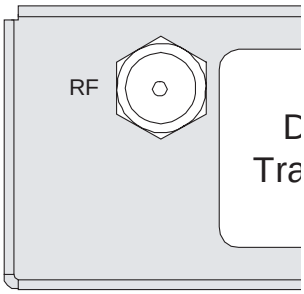



Fig. 2-11, RF Connection

## 2.10 Verify Transponder Operation

During initial transponder power-up, the RDY LED will be on solid.

- Once the reset is complete, the RDY LED will flash at a ½ sec ON, ½ sec OFF rate.
- The RX LED will now be ON, flickering OFF occasionally, indicating a link with the CMTS has been established.
- The TX LED will be off (idle state), but will flicker on when transmitting data to the CMTS.

# 3.0 Network/Element Management Software

## 3.1 Provisioning the SNMP Manager

The following MIB (Management Information Base) files are required for the SNMP Manager to collect data from the transponders. These files can be found on the Society of Cable Telecommunications (SCTE) web site www.scte.org. These are dependencies between MIB files so they should be compiled in the following order listed below:

ANSI/SCTE 36 2002 (formerly HMS 028), SCTE-ROOT Management Information Base (MIB) Definitions

ANSI/SCTE 37 2003 (formerly HMS 072), Hybrid Fiber/Coax Outside Plant Status Monitoring SCTE-HMS-ROOTS Management Information Base (MIB) Definition

ANSI/SCTE 38-1 2002 (formerly HMS 026), Hybrid Fiber/Coax Outside Plant Status Monitoring SCTE-HMS-PROPERTY-MIB Management Information Base (MIB) Definition

ANSI/SCTE 38-2 2002 (formerly HMS 023), Hybrid Fiber/Coax Outside Plant Status Monitoring SCTE-HMS-ALARMS-MIB Management Information Base (MIB) Definition

ANSI/SCTE 38-3 2002 (formerly HMS 024), Hybrid Fiber/Coax Outside Plant Status Monitoring SCTE-HMS-COMMON-MIB Management Information Base (MIB) Definition

ANSI/SCTE 38-4 2002 (formerly HMS 027), Hybrid Fiber/Coax Outside Plant Status Monitoring SCTE-HMS-PS-MIB Management Information Base (MIB) Definition

ANSI/SCTE 38-6 2003 (formerly HMS 033) Hybrid Fiber/Coax Outside Plant Status Monitoring - SCTE-HMS-GEN-MIB Management Information Base (MIB) Definition

ANSI/SCTE 38-7 2002 (formerly HMS 050), Hybrid Fiber/Coax Outside Plant Status Monitoring SCTE-HMS-Transponder-Interface-Bus(TIB)-MIB Management Information Base (MIB) Definition

## 3.2 Transponder Communication with the SNMP Manager

The transponder must first complete its initialization/registration and retrieve the `.ini` or cable modem config file from the TFTP server. The transponder will then send a warm start trap to the SNMP Manager (specified as the Server IP in the `.ini` or cable modem config file). This trap provides the SNMP Manager with the MAC and IP addresses of the transponder, and should, depending on the configuration of the manager software, initiate monitoring of the power supply system.

# 4.0 Using the Local Port

Local Port Connection Procedure:

1. Connect the RS-232 to logic level converter (Alpha P/N 875-349-10) to the computer and the transponder.
2. Setup computer to use Hyper-Terminal. Settings are: **19200 baud, 8, N, and 1**.
3. Press ENTER to view the display.
4. Press ? to display the menu:

| | |
|---|---|
| HELP | - This help |
| ? | - This help |
| RESET | - Reset transponder |
| STATUS | - Transponder config and status |
| ALARMS | - Display active alarms |
| ID | - Enter logical ID |
| PSDATA | - Display power supply data |
| DEVICE | - Display device status |
| PSTEST | - Initiate power supply test |
| GENDATA | - Display generator data |
| GENTEST | - Initiate generator test |
| GENRESET | - Reset generator alarms |

5. Verify using menu item PSDATA1 that communications between the power supply, communication card, and the transponder is established and reliable. Verify valid data is displayed for the addressed power supply.
6. Verify using menu item STATUS that the transponder version data is consistent and record the address:

| | |
|---|---|
| MAC Address: | 00-10-3F-00-00-0D |
| Serial No: | E1E8E7 |
| Version: | 1.0.2.L 1600 950-0315 A 05.00 |
| IP Address: | 192.168.1.102 |
| Check code: | 0x0000 |
| CommonNEStatus: | 0x19 |

(actual data will be different)

**NOTE:**

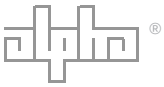
To access additional configuration options type “gubed” at the command prompt, followed by password “THEBEST”.

# 5.0 Specifications

| DOCSIS® Network Power Monitoring General Specifications | | | | |
|---|---|---|---|---|
| **General** | | | | |
| Power Supplies Supported: | XM2 using USM2 or USM2.5 XM/AM using USM/RPM, ZTT, ZTT+, Generic | | | |
| DOCSIS Compatibility: | Firmware DOCSIS 1.1 | | | |
| Monitoring Protocol: | SNMPv1 | | | |
| Devices Monitored: | Power Supply, Batteries and Generator (analog status approximates ANSI/SCTE 25-3 2002, formerly HMS 022) | | | |
| **RF Transmit / Receive** | | | | |
| Tx Frequency Range: | 5 to 42 MHz | | | |
| Output Power: | +8 to +58 dBmV | | | |
| Channel Bandwidth: | 6 MHz | | | |
| Receive Center Freq Range: | 91 to 857 MHz (Standard, HRC, IRC channels) | | | |
| Input Level: | -15 to +15 dBmV | | | |
| **Monitored Parameters** | | | | |
| Power Supply Data: | | | | |
| Model | XM2 | XM/AM | ZTT/ZTT+ | Other1 |
| Output Voltage | X | X | X | X |
| Battery Voltage | X | X | X | X |
| Output Current | X | X | X | X |
| AC Line Voltage | X | X | X | X |
| Standby/AC Line Fail | X | X | X | |
| Equipment/Test Fail | X | X | | |
| Output Fail | X | X | | |
| Enclosure Door | X | X | X | X |
| Test (Control) | X | X | X | |
| Cabinet Temp. | X | X | X | X |
| Notes: 1) This option enables monitoring or basic information from power supply models not listed. | | | | |
| Number of Battery Strings: | 1-4 Strings of 24V, 36V or 48V | | | |
| Battery Data: | Individual Battery Voltages | | | |
| Generator Control: | Remote test (start/stop) | | | |
| Generator Data: (Requires AlphaGen generator system with ECM status interface) | | | | |
| Major Alarm (Consists of: Low Oil Pressure, Engine Over-temp, Engine Over-speed, Crank Limit, Over Voltage, Low Fuel, Water Intrusion, Pad Shear, Gas Hazard, Test Fail) | | | | |
| Minor Alarm (Consists of: Control Fail, Alternator Fail, Low Ignition Battery Voltage, Manual Bypass Active, Enclosure Door, DC Voltage Tolerance, Engine Disabled, Service Required) | | | | |
| Engine Alarm (Consists of: Low Oil Pressure, Engine Over-temp, Engine Over-speed, Crank Limit, Engine Disabled) | | | | |
| Gas Hazard | | | | |
| Enclosure Alarm | | | | |
| Test Status (pass/fail) | | | | |
| Enclosure Door (open/closed) | | | | |
| **Management** | | | | |
| NMS/EMS: Cheetah™ DOCSIS® Power Supply Management Software Standard SNMP Management Tools | | | | |
| HMS MIBs: Power Supply (ANSI/SCTE 38-4) Generator (ANSI/SCTE 38-6)Transponder (ANSI/SCTE 38-3) Alarm/Trap (ANSI/SCTE 38-1 and 38-2) | | | | |

| **Hardware** | | |
|---|---|---|
| RF Cable Interface: | F-connector, female, 75 ohm | |
| Local Interface: | RJ-12, RS-232, 19.2kb,N,8,1 Requires serial port adapter and PC with terminal emulation software (Hyper-Terminal recommended) | |
| LED Indicators: | RF Transmit | |
| | RF Receive/Link | |
| | Transponder Ready | |
| | Local Data | |
| Environmental: | -40ºC to +65ºC 10% to 90% non-condensing humidity | |
| Emissions: | EN50022 Class A and FCC Part 15 Class A (Installed in power supply enclosure system) | |
| Warranty: | 2 years | |
| Dimensions: | 4.6”D x 5.75”W x 1.5”H | |
| **Ordering Information** | | |
| 745-419-20 | DOCSIS Analog Transponder with VoIP Test Functions Order power supply interface cable and battery sense kit separately. | |
| 745-419-22 | DOCSIS Analog Transponder, Dual IP Order power supply interface cable and battery sense kit separately. | |
| 875-335-20 | Interface cable for monitoring XM2 with **USM2 (120/240VAC)** or **USM2.5 (120VAC)** status interface | |
| 875-335-21 | Interface cable for monitoring XM/AM with USM/RPM status interface | |
| 875-335-22 | Interface cable for monitoring ZTT or ZTT+ (post 1998) | |
| 875-335-23 | Interface cable for monitoring ZTT+ (pre-1998 versions) | |
| 875-335-24 | XM2 with **USM2.5 (240VAC input)** | |
| 875-335-25 | Interface kit for monitoring other power supplies not listed herein. Contact Alpha for details. | |
| 875-349-10 | Local port adaptor | |
| **Battery Sense Wire Kits:** | | |
| XP-BSC-24-2-6 | 1x24V, 6’ | 875-401-20 |
| XP-BSC-24-4-6 | 2x24V, 6’ | 875-401-21 |
| XP-BSC-24-2-9 | 1x24V, 9’ | 875-401-22 |
| XP-BSC-24-4-9 | 2x24V, 9’ | 875-401-23 |
| XP-BSC-3-6 | 1x36V, 6’ | 874-842-21 |
| XP-BSC-3-9 | 1x36V, 9’ | 874-842-27 |
| XP-BSC-6-9 | 2x36V, 9’ | 874-842-28 |
| XP-BSC-4-6 | 1x48V, 6’ | 874-841-21 |
| XP-BSC-8-6 | 2x48V, 6’ | 874-841-20 |
| XP-BSC-4-9 | 1x48V, 9’ | 874-841-25 |
| XP-BSC-8-9 | 2x48V, 9’ | 874-841-24 |
| RTS (Required in cabinets with tamper using screw terminals) | | 745-178-21 |
| Tamper Wire Kit | | 845-494-20 |
| Vin 120V Sense (Required for all applications except USM2.5) | | 875-493-21 |
| Extended wire lengths available. Contact Alpha for ordering information. | | |

Power

Alpha Technologies 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